

| L Number | Hits | Search Text | DB | Time stamp |
|----------|------|---|--------------------|---------------------|
| 1 | 2 | ((("6537908") or ("22020052125") or ("6503840")).PN. | USPAT; US-PGPUB | 2003/11/11 10:04 |
| 2 | 3 | ((("6537908") or ("20020052125") or ("6503840")).PN. | USPAT; US-PGPUB | 2003/11/11 10:12 |
| 3 | 3490 | ((etch adj stop) or (hard adj mask) or cap) with (Ta or Ti or W or TaN or TiN or WN or TaSiN or TiSiN or WSiN or TiW) | USPAT; US-PGPUB | 2003/11/11 10:14 |
| 4 | 2670 | ((etch adj stop) or (hard adj mask) or cap) with (Ta or Ti or W or TaN or TiN or WN or TaSiN or TiSiN or WSiN or TiW)) and (via or opening or trench or hole or access or aperture) | USPAT; US-PGPUB | 2003/11/11 10:15 |
| 5 | 535 | ((((etch adj stop) or (hard adj mask) or cap) with (Ta or Ti or W or TaN or TiN or WN or TaSiN or TiSiN or WSiN or TiW)) and (via or opening or trench or hole or access or aperture)) and (cmp or (chemical adj mechanical adj polish\$3)) | USPAT; US-PGPUB | 2003/11/11 10:16 |
| 6 | 399 | (((((etch adj stop) or (hard adj mask) or cap) with (Ta or Ti or W or TaN or TiN or WN or TaSiN or TiSiN or WSiN or TiW)) and (via or opening or trench or hole or access or aperture)) and (cmp or (chemical adj mechanical adj polish\$3))) and @ad<20020117 | USPAT; US-PGPUB | 2003/11/11 10:16 |

US-PAT-NO: 6140226

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TITLE: Dual damascene processing for
semiconductor chip interconnects

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Detailed Description Text - DETX (9):

FIG. 3A shows the structure of FIG. 1C after application of an overlayer of resist 34 analogous to resist layer 16, but patterned with a wiring level pattern. Hard mask layer 14 is then patterned with the wiring pattern of resist layer 34, to produce the structure of FIG. 3B. The wiring pattern of resist layer 34 is then transferred to dielectric layer 12, and preferably to dielectric etch stop layer 10 as well, to form cavity 36 in FIG. 3C. A thin layer of conductive or insulating liner material 38 that may also be used as a hard mask is then conformally deposited over the topography of FIG. 3C to form the lined cavity 40 shown in FIG. 3D. Possible hard mask/liner materials for hard mask/liner material 38 include conductive materials such as the metals W, Ta, Ti, Zr, Cr, Hf, the metal nitrides WN, TaN, TiN, ZrN, HfN, and metal silicon nitrides such as TaSiN, TiSiN, ZrSiN, and HfSiN, semiconductors such as amorphous hydrogenated silicon (a-Si:H), and insulators such as SiO₂, Si₃N₄, and SiCOH compounds. Hard mask/liner material 38 is preferably conducting if any of it is to be left in the final structure.